



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/605,671

10/16/2003

Monica M. Marugan

GEPL.P-077

2670

43247

7590

05/22/2009

Larson & Anderson, LLC

re: lexan

PO BOX 4928

DILLON, CO 80435

EXAMINER

ZIMMER, MARC S

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

05/22/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MONICA M. MARUGAN
and THOMAS EBELING

Appeal 2009-001286
Application 10/605,671
Technology Center 1700

Decided:¹ May 22, 2009

Before CHUNG K. PAK, TERRY J. OWENS, and
BEVERLY A. FRANKLIN, *Administrative Patent Judges*.

PAK, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the Decided Date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

STATEMENT OF THE CASE

This is a decision on an appeal under 35 U.S.C. § 134 from the Examiner's final rejection of claims 72 through 80, 83 through 88, 91 through 107, 110 through 124, and 127 through 132. Claims 81, 82, 89, 90, 108, 109, 125, and 126, the other pending claims in the above-identified application, were objected to as being dependent on a rejected base claim, but were indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. We have jurisdiction pursuant to 35 U.S.C. § 6.

The subject matter on appeal is directed to “polycarbonate compositions, and particularly to polycarbonate/styrenic molding compositions which are colored using titanium dioxide to produce a white or other light colored product” (Spec. 1, Para. 0001). Details of the appealed subject matter are recited in claims 72, 73, 102, 119, and 132 reproduced below²:

72. A composition comprising:

(a) a bulk resin component comprising a polycarbonate resin;

(b) a polycarbonate-siloxane copolymer in an amount sufficient to provide an amount of siloxane of at least 3% by weight of the total composition; and

(c) a colorant composition comprising titanium dioxide having an organic coating, wherein the amount of titanium dioxide is from 1 to

² Appellants have presented substantive arguments for separate patentability of claims 72, 73, 102, 119, and 132 on appeal. Therefore, for the purpose of this appeal, we will address them only consistent with 37 C.F.R. § 41.37(c)(1)(vii) (2005).

2.5% by weight of the total composition.

73. The composition of claim 72, wherein the bulk resin component makes up at least 50% of the composition.

102. An article, having a wall thickness greater than a first thickness, said article being formed from a molding composition comprising:

(a) a bulk resin component comprising a polycarbonate resin;

(b) a polycarbonate-siloxane copolymer; and

(c) a colorant composition comprising titanium dioxide, wherein the titanium dioxide has an organic coating, and the amount of polycarbonate-siloxane copolymer is selected such that molding composition achieves a V0 UL fire rating at the first thickness.

119. A method for forming a light colored, flame retardant polycarbonate article comprising the steps of forming a blend by combining:

(a) a bulk resin component comprising a polycarbonate resin;

(b) a polycarbonate-siloxane copolymer in an amount sufficient to provide an amount of siloxane of at least 3% by weight of the total composition; and

(c) a colorant composition comprising titanium dioxide having an organic coating comprising an organic polysiloxane, trimethylolpropanol, or mixtures thereof, wherein the amount of titanium dioxide is from 1 to 2.0 % by weight of the total composition; and

forming an article from the blend.

132. A method for enhancing the flame retardance of a light colored composition comprising a bulk resin component comprising polycarbonate; a polycarbonate-siloxane copolymer; and a colorant composition comprising titanium dioxide, said method comprising the steps of

(a) including the polycarbonate-siloxane copolymer in the composition in an amount sufficient to provide an amount of siloxane of at least 3% by weight of the total composition; and

(b) selecting as the titanium dioxide a titanium dioxide having an organic coating comprising a polyorganosiloxane, trimethylolpropanol, or mixtures thereof.

As evidence of unpatentability of the appealed subject matter, the Examiner proffered the following prior art:

| | | |
|---------|--------------------|---------------|
| Nelson | US 3,542,575 | Nov. 24, 1970 |
| Brand | US 4,357,170 | Nov. 02, 1982 |
| Okumura | US 5,451,632 | Sep. 19, 1995 |
| Lo | US 5,804,654 | Sep. 08, 1998 |
| Falcone | US 2002/0019466 A1 | Feb. 14, 2002 |

The Examiner rejected the claims on appeal as follows:

1) Claims 72 through 78, 80, 83 through 88, 91 through 97, 100, 102 through 107, 110 through 112, 114 through 116, 118 through 124, 127 through 130, and 132 under 35 U.S.C. § 103(a) as unpatentable over the disclosure of Okumura;

2) Claims 79, 101, and 131 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Okumura, and Lo and/or Falcone; and

3) Claims 94 through 96, 98, 99, 113 through 115, 117, and 118 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Okumura, and either or both Brand and/or Nelson.

Appellants traverse the Examiner's decision rejecting the claims on appeal under 35 U.S.C. § 103(a). As to the first ground of rejection, Appellants contend that Okumura does not teach or suggest a three-

component composition comprising the claimed specific colorant, polycarbonate, and polycarbonate-polysiloxane copolymer as required by claims 72, 102, 119, and 132 (App. Br. 4-5). Appellants also contend that “Okumura fails to expressly disclose these compounds in the amounts specified in the claims” (App. Br. 5 and Reply Br. 1). Appellants contend that Okumura does not teach or suggest the amount of polycarbonate-siloxane copolymer useful for imparting a V0 UL fire rating at the first thickness of the claimed molding composition as required by claim 102 (App. Br. 10-11). Appellants contend that Okumura could not have employed the claimed amounts of polycarbonate-siloxane copolymer if the bulk resin makes up at least 50% of the total composition as required by claims 73 and 103 (App. Br. 10).

To the extent that Okumura would have suggested the claimed three-component composition in the amounts specified in the claims, Appellants contend that the claimed subject matter imparts unexpected results (App. Br. 4, and 6-10 and Reply Br. 3-4).

As to the remaining grounds of rejection set forth by the Examiner, Appellants assert that none of the additional references relied upon by the Examiner remedy the deficiencies of Okumura (App. Br. 11-12). In other words, Appellants are relying on the same arguments for the remaining grounds of rejection (*id*).

ISSUES

Have Appellants identified reversible error in the Examiner’s determination that one of ordinary skill in the art would have been led to employ the claimed polycarbonate resin, polycarbonate-siloxane copolymer,

and colorant composition in the claimed amounts in forming the molding composition and article recited in claims 72, 73, 102, 119, and 132?

If not, have Appellants carried the burden of showing that the claimed subject matter imparts unexpected results?

CONCLUSIONS

On this record, Appellants have not identified reversible error in the Examiner's determination that one of ordinary skill in the art would have been led to employ the claimed polycarbonate resin, polycarbonate-siloxane copolymer, and colorant composition in the claimed amounts in forming the molding composition and article recited in claims 72, 73, 102, 119, and 132. Nor have Appellants carried the burden of showing that the claimed subject matter imparts unexpected results.

RELEVANT FACTUAL FINDINGS (FF)

The Factual Findings set forth below are supported by a preponderance of the evidence:

1. Okumura teaches that its invention lies in "a novel polycarbonate-polyorganosiloxane copolymer having excellent flame resistance, impact resistance, transparency and mold releasing property and a resin composition comprising said copolymer and an inorganic filler, a pigment or other resins and having an excellent flow property, sliding property, solvent resistance or the like" (col. 1, ll. 10-16).
2. Okumura teaches a resin composition comprising 99.9 to 0.1 weight percent of a polycarbonate (PC) and 0.1 to 99.9 weight percent of a polycarbonate-polyorganosiloxane (PC-PDMS) copolymer with the

polyorganosiloxane content of the copolymer preferably being in the range of 0.02 to 8 weight percent based on the total of PC and PC-PDMS (col. 9, ll. 5-11 and col. 10, ll. 40-56).

3. Okumura exemplifies a resin composition comprising 10 to 98.7 weight percent of a PC and 1.3 to 90 weight percent of a PC-PDMS copolymer, with V-0 (UL-94) fire resistance rating, wherein one of the exemplified PC-PDMS copolymers has a PDMS content as high as 15% (cols. 27 and 28, Tables 1B and 2B, and col. 26, ll. 8-19).

4. Okumura teaches another resin composition comprising 85 to 99.9 weight percent of a PC-PDMS copolymer and preferably 10 to 0.1 weight percent of (white or black) pigment with many exemplified resin compositions containing 99 weight percent of PC-PDMS copolymer and 1 weight percent of titanium dioxide pigment (white color) and a fire resistance rating (UL-94) of V-0 (col. 12, ll. 40-68 and cols. 30 and 31, Tables 1D and 2D).

5. Okumura teaches that titanium dioxide pigment is more effective when its surface is treated with a surface treating agent and “[f]or improvement of dispersion of titanium oxide in the resin composition, silicone oil, polyol or the like may be used” (col. 12, ll. 51-59).

6. Okumura teaches (col. 15, ll. 45-59) that:

To PC-PDMS copolymer and the resin composition of the present invention, various kinds of additives can be added as the component (C) within the range that the object of the present invention is not adversely affected. Examples of such

additives are antioxidants, . . . internal lubricants, . . . flame retardants, flame retarding auxiliary agents, antistatic agents, coloring agents and the like.

7. Appellants acknowledge that coloring agents, such as Tioxide R-FC5 (titanium oxide crystal coated with TMP/ PDMS and Al₂O₃) sold by Huntsman and Titafrance RL9 (titanium oxide crystal coated with PDMS/silicon oil), were commercially available at the time of the invention (Spec. para. 0056 and Table 1 at para. 0057).

8. Appellants do not dispute the Examiner's findings and conclusion at page 7 of the Answer that:

Lo teaches the preparation of styrene-acrylonitrile-encapsulated PTFE (column 4, lines 20-22) that acquires the form of a free flowing polymer that, when blended into a thermoplastic, does not adversely affect the mechanical properties and, further, even provides an enhancement in flame-resistance (column 1, lines 32-39). Falcone (Example 1) indicates that the incorporation of these copolymers as anti-dip agents is now conventional. Accordingly, this aspect of the invention is obvious.

9. Appellants also acknowledge at paragraph 0056 of the Specification that a drip retardant encapsulated poly(tetrafluorethylene) comprising 50 weight percent of polystyrene acrylonitrile and 50 weight percent poly(tetrafluorethylene) sold by General Electric Plastix Europe was commercially available at the time of the invention.

10 Appellants do dispute the Examiner's finding at page 7 of the Answer that Okumura, Brand and Nelson would have suggested coating titanium oxides with a trimethylolpropanol, with a reasonable expectation of

successfully improving dispersion of titanium oxide in Okumura's composition.

11. Appellants also acknowledge that Tioxide R-FC5 (titanium oxide crystal coated with TMP/ PDMS and Al₂O₃) sold by Huntsman was commercially available at the time of the invention (Spec. para 0056 and Table 1 at para. 0057).

12. Appellants assert (App Br. 4) that:

The inventors have found that the addition of polycarbonate-siloxane copolymer (e.g., PC-PDMS) to titanium dioxide (TiO₂) / polycarbonate (PC) compositions unexpectedly reduces the flame retardant properties of the three-component compositions. *See* page 3[,] lines 4 to 14 of the present application. . . . The present application is based upon the special case where this type of expected result does not hold true and the inventors have provided novel and unexpected solutions to this unexpected problem.

13. To show the asserted unexpected results, Appellants rely on Examples 1 and 3 and Tables 3 through 5 of the present application (App. Br. 4 and 6-10 and Reply Br. 2-3).

14. Example 1 and Table 3 in the Specification are directed to testing UL samples made from unidentified amounts of four grades of TiO₂ having particular crystal sizes coated or uncoated with an organic coating and/or inorganic coating, and specific amounts of a particular polycarbonate mixture (i.e., pellets of bisphenol-A polycarbonate made by a melt process with a Melt Flow Rate, MVR@300°C, 1.2kg, of 23.5-28.5, target 26.0g/cm³ and bisphenol-A polycarbonate made by a melt process with a Melt Flow

rate, MVR@300°C, 1.2kg, of 5.1-6.9, target 6.0g/cm³), an unidentified polycarbonate-siloxane copolymer, and additives such as 90% esterfied pentaerythritol tetrastearate, bisphenol A bis(diphenylphosphate), and a drip retardant encapsulated poly(tetrafluorethylene) from General Electric Plastics Europe. (See Spec. paras. 0056 and 0057).

15. According to paragraphs 0058 and 0059 of the Specification:

[0058] As is apparent from the results [shown in Example 1 and Table 3], while the compositions with no colorant (NC) or black pigment (BK) had p(FTP)V0@1.6 mm of greater than 0.9 (indicating a greater than 90% likelihood of passing this test), none of the TiO₂ [sic, TiO₂]containing formulations had a reasonable likelihood of passing. The melt viscosities were similar for each of the materials tested.

[0059] This example illustrates the unanticipated problem with using TiO₂ [sic, TiO₂]to make white or light colored products in such compositions.

16. Contrary to the statements at paragraph 0058 of the Specification, Table 3 shows that samples reflective of the prior art having different amounts of the particular polycarbonates used and an unknown amount of the particular grade TiO₂ employed would provide a high test passage rate at p(FTP)@1.6 mm of 0.52 to 0.72 (indicating 52% to 70% likelihood of passing the test).

17. Tables 4 and 5 and Example 3 show testing 13 through 21 samples supposedly representative of the claimed subject mater produced in a particular manner from mixtures similar to those exemplified in Example 1 and Table 3, except that they contain a specific amount of compound identified as AO 1076 not used in Example 1 and Table 3, with different

amounts of the specific polycarbonates and the specific titanium dioxide grade.

18. Tables 4 and 5 and Example 3 show that similar results are obtained even when the percentage of an unspecified polycarbonate-siloxane copolymer in the related samples is varied from 12 percent to 18 percent.

19. It is not clear from Examples 1 and 3 and Tables 3 through 5 that the alleged unexpected result is due to the particular amounts of particular polycarbonate mixtures used in the samples, the particular proportions of all the ingredients in the samples, the particular unidentified polycarbonate-siloxane copolymer employed in the samples, the particular method used to make the samples, or the claimed lower amounts of TiO_2 or the claimed high amounts of siloxane as alleged.

20. The cause-and-effect relationship, which Appellants desire to show between the claimed low amounts of TiO_2 or the claimed high amounts of siloxane and the alleged unexpected result (flame retardancy) is lost in the welter of multiple unfixed and unidentified variables (Examples 1 and 3 and Tables 3 through 5).

21. Appellants have not demonstrated, much less explained, why the showing in Examples 1 and 3 and Tables 3 through 5 of the Specification is reasonably commensurate in scope with the degree of protection sought by the claims on appeal. (App. Br. 6-12 and Reply Br. 2-3).

22. While the showing in Examples 1 and 3 and Tables 3 through 5 of the Specification is limited to specific samples having specific (unidentified) thicknesses and specific proportions of specific polycarbonate mixtures, specific (unidentified) polycarbonate-siloxane copolymer, specific titanium

dioxide materials and specific additives, the claims on appeal are not so limited. (*Compare* Examples 1 and 3 and Tables 3 through 5 *with* claims 72, 73, 102, 119, and 132).

23. Appellants assert (App. Br. 9) that:

The desired amount of polycarbonate-siloxane copolymer depends on the minimum thickness of the article, the amount of polycarbonate, the amount the titanium dioxide, and the type of coating applied to the titanium dioxide.

24. Appellants have not shown that the samples, without the specific amounts of the specific additives used in Table 4 and 5 and Example 3, would produce the alleged unexpected result.

25. Appellants have not shown that samples having polycarbonates, polycarbonate mixtures, and polycarbonate-siloxane copolymers materially different from those specifically shown in Examples 1 and 3 and Tables 3 through 5, but included by claims 72, 73, 102, 119, and 132, would produce the alleged unexpected results.

PRINCIPLES OF LAW

Under 35 U.S.C. § 103, the factual inquiry into obviousness requires a determination of: (1) the scope and content of the prior art; (2) the differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) secondary considerations, if any. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966).

KSR disapproved a rigid approach to obviousness (*i.e.*, an analysis *limited to* lack of teaching, suggestion, or motivation). *KSR Int'l Co., v. Teleflex Inc.*, 550 U.S. 398, 419 (2007) (“The obviousness analysis cannot

be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents.”). *See also DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1367-1368 (Fed. Cir. 2006) (“Our suggestion test is in actuality quite flexible and not only permits, but *requires*, consideration of common knowledge and common sense”); *Alza Corp. v. Mylan Labs., Inc.*, 464 F.3d 1286, 1290-91 (Fed. Cir. 2006) (“There is flexibility in our obviousness jurisprudence because a motivation may be found *implicitly* in the prior art. We do not have a rigid test that requires an actual teaching to combine . . .”).

“[A] prior art reference must be ‘considered together with the knowledge of one of ordinary skill in the pertinent art.’” *In re Paulsen*, 30 F.3d 1475, 1480-1481 (Fed. Cir. 1994) (quoting *In re Samour*, 571 F.2d 559, 562 (CCPA 1978)). In an obviousness analysis, the proper focus is on evidence of what was known before the time of invention, and the analysis must not unduly constrain the breadth of knowledge available to one of ordinary skill in the art. *In re Translogic Tech. Inc.*, 504 F.3d 1249, 1260 (Fed. Cir. 2007). The knowledge generally available to a person having ordinary skill in the art includes facts admittedly well known in the art. *See In re Nomiya*, 509 F.2d 566, 570-71 (CCPA 1975) (The admittedly known prior art in the Appellants’ Specification may be used in determining the patentability of a claimed invention.).

KSR, 550 U.S. at 417-18 states:

[A]nalysis [of whether the subject matter of a claim would have been prima facie obvious] need not seek out precise teachings directed to the specific subject matter of the challenged claim,

for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.”

Thus, “[i]t is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition which is to be used for the very same purpose.” *In re Kerkhoven*, 626 F.2d 846, 850 (CCPA 1980)).

In terms of process parameters, our reviewing court stated in *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990) stated:

The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. These case have consistently held that in such a situation, the applicant must show that the particular range is *critical*, generally by showing that the claimed range achieves unexpected results relative to the prior art range. [Citations omitted.]

“[D]iscovery of an optimum value of a result effective variable . . . is ordinarily within the skill of the art.” *In re Boesch*, 617 F.2d 272, 276 (CCPA 1980); *see also In re Aller*, 220 F.2d 454, 456 (CCPA 1955) (“[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.”).

[W]here the prior art gives reason or motivation to make the claimed [invention] . . . the burden (and opportunity) then falls on an applicant to rebut that *prima facie* case. Such rebuttal or argument can consist of . . . any other argument or presentation of evidence that is pertinent.

In re Dillon, 919 F.2d 688, 692-93 (Fed. Cir. 1990) (*en banc*).

A showing of unexpected results may be sufficient to overcome a *prima facie* case of obviousness. *In re Dillon*, 919 F.2d 688, 692-93 (Fed. Cir. 1990). Our reviewing court has emphasized repeatedly that "[i]t is well settled that unexpected results must be established by factual evidence. Mere argument or conclusory statements in the specification does not suffice." *In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984), quoted with approval in *In re Soni*, 54 F.3d 746, 750 (Fed. Cir. 1995).

Appellants bear the burden of showing unexpected results. *In re Geisler*, 116 F.3d 1465, 1469-70 (Fed. Cir. 1997); *In re Klosak*, 455 F.2d 1077, 1080 (CCPA 1972). Such a showing must be truly comparative. As stated in *In re Dunn*, 349 F.2d 433, 439 (CCPA 1965):

While we do not intend to slight the alleged improvements, we do not feel it an unreasonable burden on appellants to require comparative examples relied on for non-obviousness to be truly comparative. The cause and effect sought to be proven is lost here in the welter of unfixed variables.

The showing also must be reasonably commensurate with the scope of protection sought by the claims on appeal. *In re Grasselli*, 713 F.2d 731, 743 (Fed. Cir. 1983); *In re Clemens*, 622 F.2d 1029, 1035 (CCPA 1980). The extent of the showing relied upon by Appellants must reasonably support the entire scope of the claims at issue as explained by *In re Harris*, 409 F.3d 1339, 1344 (Fed. Cir. 2005) below:

The Board also correctly reasoned that the showing of unexpected results is not commensurate in scope with the degree of protection sought by the claimed subject matter because the elemental composition of CMSX®-486 is at or near the midpoint of the claimed range. While Harris's evidence may show a slight improvement over some alloys, the record

does not show that the improved performance would result if the weight-percentages were varied within the claimed ranges. Even assuming that the results were unexpected, Harris needed to show results covering the scope of the claimed range.

ANALYSIS AND CONCLUSION OF LAW

Appellants have not identified any reversible error in the Examiner's determination that one of ordinary skill in the art would have been led to employ the claimed polycarbonate resin, polycarbonate-siloxane copolymer, and colorant composition in the claimed amounts in forming the molding composition and article recited in claims 72, 73, 102, 119, and 132. As indicated *supra*, Okumura teaches and exemplifies a composition containing a polycarbonate and a polycarbonate-siloxane copolymer (PC-PDMS), with the content of siloxane, including those claimed. Even when the content of a polycarbonate exceeds 50 weight percent as required by claim 73, the content of siloxane in the composition encompasses those claimed as suggested by Okumura via using Okumura's exemplified PC-PDMS copolymers having the PDMS (siloxane) content as high as 15%.

Although Okumura does not exemplify a composition comprising a polycarbonate, a polycarbonate-siloxane copolymer, and titanium dioxide colorant coated with an organic coating comprising an organic polysiloxane, tremethylopropanol, or mixtures thereof, it teaches that additional additives, such as a result effective amount of a colorant, can be added to its composition containing a polycarbonate and a polycarbonate-siloxane copolymer. Okumura teaches using titanium dioxide pigment treated with

silicon oil, polyol or the like to impart white color. Indeed, Appellants acknowledge that titanium dioxide pigments coated with an organic polysiloxane (PDMS) or trimethylpropanol (TMP) were commercially available colorants at the time of the invention. Okumura further teaches that such titanium dioxide colorant can be used as part of a molding composition containing polycarbonate-siloxane copolymer, with most of its exemplified molding composition containing 1 weight percent of titanium oxide.

Given the above teachings, we determine that one of ordinary skill in the art would have been led to employ the claimed amounts of the claimed polycarbonate resin, polycarbonate-siloxane copolymer and a colorant, such as titanium dioxide coated with polysiloxane, in forming molding compositions and articles having p(FTP)V0@1.6 mm within the meaning of 35 U.S.C. § 103(a). Claim 102, reciting a V0 UL fire rating at the first thickness, does not distinguish its composition from the samples supposedly representative of the prior art composition since some of these prior art samples (fifty-two to seventy-two percents), according to Appellants' data at Table 3 in the Specification, meet the claimed fire rating requirement and since Okumura is directed to forming a compositing having the claimed fire rating requirement.

As rebuttal to the prima facie case of obviousness established by the Examiner, Appellants rely on Examples 1 and 3 and Tables 3 through 5 in the Specification to show that the claimed subject matter imparts unexpected results. On this record, Appellants have not carried their burden of showing unexpected results.

First, it is not clear from Examples 1 and 3 and Tables 3 through 5 that the alleged unexpected result is due to the particular amounts of particular polycarbonate mixtures used in the samples, the particular proportions of all the ingredients in the samples, the particular unidentified polycarbonate-siloxane copolymer employed in the samples, the unidentified thicknesses of the samples, or the claimed low amounts of TiO_2 or the claimed high amounts of siloxane as alleged. The cause-and-effect relationship, which Appellants desire to show between the claimed lower amounts of TiO_2 or the claimed high amounts of siloxane and the alleged unexpected result (flame retardancy) is lost in the welter of multiple unfixed and unidentified variables.

Second, Appellants have not demonstrated that the showing in Examples 1 and 3 and Tables 3 through 5 of the Specification is reasonably commensurate in scope with the degree of protection sought by the claims on appeal. While the showing in Examples 1 and 3 and Tables 3 through 5 of the Specification is limited to samples having specific (unidentified) thicknesses and specific proportions of specific polycarbonate mixtures, specific (unidentified) polycarbonate-siloxane copolymer, specific titanium dioxide materials and specific additives, the claims on appeal are not so limited. Appellants have not shown that the samples, without the specific proportions of specific additives used in Table 4 and 5 and Example 3, would produce the alleged unexpected result. Nor have Appellants shown that samples having polycarbonates, polycarbonate mixtures, and polycarbonate-siloxane copolymers materially different from those specifically shown in Examples 1 and 3 and Tables 3 through 5, but included

by claims 72, 73, 102, 119, and 132, would produce the alleged unexpected results.

Accordingly, based on the totality of record, including due consideration of Appellants' arguments and evidence, we determine that the preponderance of evidence weighs most heavily in favor of obviousness regarding the subject matter recited in claims 72 through 80, 83 through 88, 91 through 107, 110 through 124, and 127 through 132 within the meaning of 35 U.S.C. § 103(a).

ORDER

The decision of the Examiner is affirmed.

TIME PERIOD

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

ssl

LARSON & ANDERSON, LLC
RE: LEXAN
PO BOX 4928
DILLON, CO 80435